



Morbidity and Mortality

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EPIDEMIOLOGIC NOTES AND REPORTS

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OUTBREAK OF SALMONELLOSIS - Michigan

Between February and early April 1970, 54 cases (five fatal) of a diarrheal illness occurred among the 212 patients at a nursing home in southeastern Michigan (Figure 1). *Salmonella typhimurium* with the same antibiogram was isolated from stool cultures of 23 patients.

The nursing home is divided into two sections: the first, self care, has approximately 160 patients; the second, nursing care, has approximately 50 patients. The cases occurred throughout all sections of the home with no apparent clustering.

During the outbreak, 10 of 36 employees in the kitchen gave a history of at least 1 day of diarrhea. None of the kitchen helpers were cultured at the time of their illness. Subsequent cultures on all 36, however, revealed six who were positive for the same bacteria; one had had diarrhea

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previously and five were asymptomatic. All were removed from the kitchen. One nurses' aide developed febrile gastroenteritis; she had a positive culture during the peak of the outbreak and was relieved of her duties and treated. Eight other asymptomatic nursing personnel of the total 42 were also found to be positive when cultured, and they were removed from patient care; they were not treated.

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TABLE I. CASES OF SPECIFIED NOTIFIABLE DISEASES: UNITED STATES
 (Cumulative totals include revised and delayed reports through previous weeks)

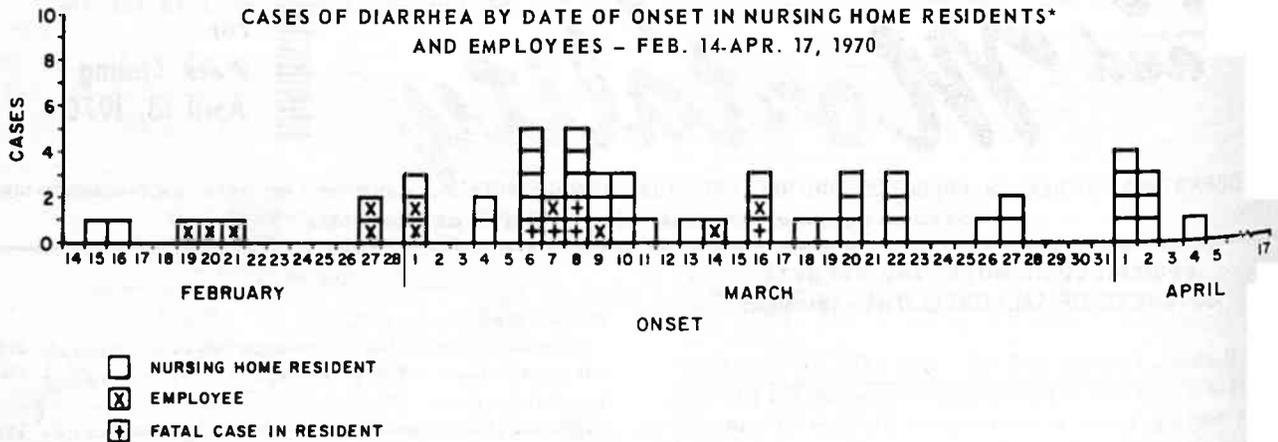
DISEASE	15th WEEK ENDED		MEDIAN 1965 - 1969	CUMULATIVE, FIRST 15 WEEKS		
	April 18, 1970	April 12, 1969		1970	1969	MEDIAN 1965 - 1969
Aseptic meningitis	23	20	31	399	413	426
Brucellosis	7	2	3	49	33	56
Diphtheria	-	1	1	94	41	41
Encephalitis, primary:						
Arthropod-borne & unspecified	29	14	31	301	286	356
Encephalitis, post-infectious	7	5	15	112	72	219
Hepatitis, serum	164	78	891	1,948	1,488	12,459
Hepatitis, infectious	1,034	964		16,243	13,774	
Malaria	82	60	22	1,000	696	582
Measles (rubeola)	1,657	875	2,712	18,604	8,549	35,275
Meningococcal infections, total	76	97	97	1,038	1,296	1,296
Civilian	56	92	82	926	1,187	1,187
Military	20	5	8	112	109	111
Mumps	3,632	2,420	- - -	40,134	36,157	- - -
Poliomyelitis, total	-	-	1	1	1	6
Paralytic	-	-	1	1	1	4
Rubella (German measles)	2,746	2,155	- - -	24,425	18,238	- - -
Tetanus	2	4	4	25	31	31
Tularemia	5	2	2	32	26	39
Typhoid fever	3	7	4	65	58	74
Typhus, tick-borne (Rky. Mt. spotted fever)	1	-	-	3	1	6
Rabies in animals	68	115	106	955	1,153	1,291

TABLE II. NOTIFIABLE DISEASES OF LOW FREQUENCY

	Cum.		Cum.
Anthrax:	1	Psittacosis: N.Y.C.-1	10
Botulism:	1	Rabies in Man:	-
Leprosy: Calif.-1	30	Rubella congenital syndrome: Calif.-2	20
Leptospirosis:	10	Trichinosis: Conn.-1	26
Plague:	-	Typhus, murine:	2

SALMONELLOSIS - (Continued from front page)

Figure 1

CASES OF DIARRHEA BY DATE OF ONSET IN NURSING HOME RESIDENTS*
AND EMPLOYEES - FEB. 14-APR. 17, 1970

* 10 CASES IN RESIDENTS NOT INCLUDED, THEIR DATES OF ONSET NOT AVAILABLE.

No common source could be found for the outbreak. The water supply and distribution system for the nursing home was satisfactory. The original introduction of the organism into a food product by one of the kitchen helpers was a possibility as suggested by the earlier occurrence of cases in this group (Figure 1). However, once the organism became established in the home, the probable mode of spread was person-to-person. Transmission may have been facilitated by deficient isolation practices for cases, poor handling of soiled linen and bedpans from patients with diarrhea, and inadequate handwashing practices and facilities.

Immediate corrective measures were suggested. Surveillance with necessary culturing of symptomatic and

asymptomatic residents was instituted to follow the day-to-day status of the outbreak. Enteric isolation for infected patients was initiated. Improvement in availability and use of handwashing facilities and procedures for handling soiled linens and bedpans were made. All personnel with positive stool cultures were removed from their duties and are being recultured routinely; none will be allowed to return to work until three consecutive stool cultures are negative.

(Reported by Otto Engelke, M.D., Health Officer, Washtenaw County Board of Health; Donald Coohan, M.D., Epidemiologist, Division of Epidemiology, and Kenneth Wilcox, Jr., M.D., Director, Bureau of Laboratories, Michigan Department of Public Health; and an EIS Officer.)

BEAR TRICHINOSIS - Pennsylvania

On Jan. 16, 1970, samples of tongue and diaphragm examined at NCDC from a black bear killed in Pennsylvania were found infected with 110 *Trichinella spiralis* larvae per gram of tissue. The state public health veterinarian was notified, and he, in turn, investigated the source of the meat. It was learned that the bear had been shot on Nov. 28, 1969, and that the meat had been distributed among six families.

These families were contacted. Members from three of them had eaten the meat, and one family reported illnesses which were not confirmed as trichinosis. During the third week in January, the father of the ill family had eaten fried bear steak which he had shared with his three children and their friend. Three of the four children suffered sore throats and symptoms suggesting an upper respiratory infection. The fourth child had a gastrointesti-

nal upset. The father experienced mild stomach upset and diarrhea after eating the steak and the mother, who did not taste the steak, had a similar illness. All persons have recovered. Eosinophil counts on the father and the children ranged from 0 - 5 percent and serologic tests were negative for trichinosis.

Three of the six families who had received meat had discarded it because it "didn't look right." The mother of one of these families had thrown it away in a nearby garbage dump, located 3 miles from where the bear had been shot in a county where many persons come to hunt in the fall. The dump is one where bears are known to feed.

(Reported by Ernest J. Witte, D.V.M., Chief, Veterinary Public Health Section, Pennsylvania Department of Health; and an EIS Officer.)

Editorial Comment:

The bear meat had been examined at NCDC because Pennsylvania is one of six states participating in a study at NCDC which was begun in 1967 to determine the prevalence of trichinosis in the black bear population of the northeastern United States (MMWR, Vol. 18, No. 46).

During the course of this study five bears were found infected with *T. spiralis* larvae out of 371 examined. Two

of these five bears were killed in areas where bears are known to feed on garbage; one of the bears is reported on above. It is interesting to note that some of the raw infected bear meat was disposed of in an open garbage dump where bears previously have been seen feeding on garbage. This would provide an opportunity for continued transmission of trichinosis infection.

INTERNATIONAL NOTES**OUTBREAK OF PARATYPHOID FEVER - United Kingdom**

In September 1969 an outbreak of paratyphoid fever occurred among patients in a maternity hospital in the United Kingdom. The first case was in a male infant with Down's syndrome, who was born prematurely on September 15 and who developed moderately severe diarrhea 6 days later. He was immediately transferred from the special-care nursery where he had been since birth to an infectious diseases hospital. Culture of his feces yielded *Salmonella paratyphi B* phage type 3a. The baby's mother then stated that she had had an influenza-like illness without diarrhea about 14 days before admission. *S. paratyphi B* was isolated from a specimen of her feces taken on September 23, and her serum taken 4 days after onset of the baby's illness agglutinated *S. paratyphi B* "O" and "H" antigens at 1:640 and 1:5,120, respectively; it seemed, therefore, that she was the source of her baby's infection.

Examination of feces or rectal swabs from all patients and staff on September 23 revealed that eight of the other 19 babies in the special-care nursery, three babies in two other wards, and one other mother were excreting *S. paratyphi B*. All but two babies excreting the organism had diarrhea which ceased within a few days without treatment. The index infant and one other premature baby later had positive blood cultures; both infants died despite treatment with chloramphenicol. The nursery was closed to new admissions, and 16 babies were transferred either to the infectious diseases hospital or to surveillance at home.

On investigation of the mother's family (Focus 1), it was found that two brothers and a married sister, who

worked in a butcher's shop, were excreting *S. paratyphi B*; no evidence of infection was found in other members of the shop staff. Only one member of the family had ever been abroad and his fecal culture and Widal reaction were negative.

On October 7 a new focus of infection appeared in two related households (Focus 2) about 12 miles from the first. During the next 10 days, nine children ages 1 to 5 years developed typical paratyphoid fever. *S. paratyphi B* was isolated from these nine and from one asymptomatic child 3 years of age. No positive cultures were obtained from adults in these households, and all adults had negative Widal tests. All the ill children were treated with chloramphenicol and recovered.

There were no known direct contact between persons in the two foci, and no common source of infection was detected as a result of investigation of food shops and examination of feces from staff and of sewer swabs in the two areas. One child from the second group (not the first affected) had spent 24 hours in the infectious diseases hospital while the index infant from the first group was there, but they were in different wards and were attended by different nurses. Six of the 24 surviving patients and asymptomatic persons were still excreting *S. paratyphi B* 10 to 12 weeks after infection.

(From notes based on reports to the Public Health Laboratory Service from Public Health and Hospital Laboratories in the United Kingdom and Republic of Ireland, published in the *British Medical Journal* dated Mar. 28, 1970.)

SURVEILLANCE SUMMARY**FOODBORNE DISEASE OUTBREAKS - United States 1969**

During 1969, 371 outbreaks of food poisoning affecting 28,563 individuals were reported from 40 states (Figure 2). In 1968, 345 outbreaks involving 17,567 persons had been reported from 42 states. Bacterial agents accounted for the majority of all foodborne outbreaks of known etiology (Figure 3); this was followed by chemical food poisoning. Parasitic and viral* agents were incriminated in less than

7 percent of the outbreaks of known etiology. In 22 percent of outbreaks, no agent could be ascribed.

(Continued on pages 152-155)

*No viral agents were isolated; the only known viral disease that was associated with foodborne illness was hepatitis. Throughout this report viral refers only to hepatitis.

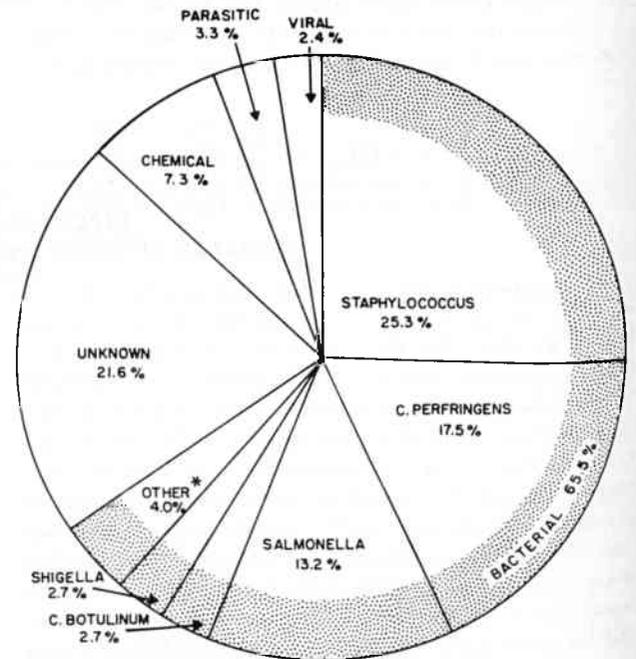
FOODBORNE DISEASE - (Continued from page 151)

In 1969, *Clostridium perfringens* (Table 1) accounted for 65 percent of all cases and 18 percent of all outbreaks. In 1968, *C. perfringens* had been implicated in only 34 percent of the food poisoning cases and was responsible for 16 percent of all outbreaks. The 1969 case figure was significantly higher than the 1968 figure because of one large outbreak of *C. perfringens* which involved over 13,000 school children. In 1969, *Staphylococcus* accounted for 12 percent of all cases and 25 percent of all outbreaks. In 1968, *Staphylococcal enterotoxins* had caused illness in 25 percent of all individuals and 24 percent of all outbreaks. The third most common agent in cases of food

Figure 2
NUMBER OF OUTBREAKS OF FOODBORNE ILLNESS
BY STATE - 1969



Figure 3
FOODBORNE DISEASE OUTBREAKS (CONFIRMED AND UNCONFIRMED), BY CAUSATIVE ORGANISM UNITED STATES - ANNUAL SUMMARY, 1969



* INCLUDES *B. CEREUS*, *E. COLI*, *STREPTOCOCCUS*, *V. PARAHEMOLYTICUS*, AND ONE OUTBREAK CAUSED BY MULTIPLE BACTERIAL ETIOLOGIES

Table 1
Division by Specific Etiology of the Total of Confirmed and Unconfirmed Outbreaks of Foodborne Illness 1968 and 1969

Etiology	1968				1969			
	Total Outbreaks		Total Patients		Total Outbreaks		Total Patients	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
BACTERIAL	220	63.8	14,617	83.2	243	65.5	25,911	90.7
<i>B. cereus</i>					3	0.8	14	*
Brucella	4	1.2	12	.1				
<i>C. botulinum</i>	9	2.6	10	.1	10	2.7	17	0.1
<i>C. perfringens</i>	56	16.2	5,966	34.0	65	17.5	18,527	64.9
<i>E. coli</i>	6	1.7	1,234	7.0	5	1.3	398	1.4
Salmonella	42	12.2	1,287	7.3	49	13.2	1,892	6.6
Shigella	6	1.7	407	2.3	10	2.7	1,444	5.1
Staphylococcus	82	23.8	4,419	25.2	94	25.3	3,481	12.2
Streptococcus	15	4.3	1,282	7.3	4	1.1	37	0.1
<i>Vibrio parahemolyticus</i>					2	0.5	71	0.2
Multiple etiologies					1	0.3	30	0.1
PARASITIC								
<i>Giardia lamblia</i>					1	0.3	19	0.1
<i>Trichinella spiralis</i>	9	2.6	82	.5	11	3.0	35	0.1
VIRAL								
Hepatitis	6	1.7	238	1.4	9	2.4	116	0.4
CHEMICAL								
Chinese restaurant syndrome (Monosodium glutamate)	5	1.4	15	0.1	2	0.5	6	*
Mushroom					4	1.1	9	*
Other chemical	17	4.9	98	0.6	21	5.7	157	0.5
Miscellaneous	3	.1	76	.7				
UNKNOWN	85	24.6	2,441	13.9	80	21.6	2,310	8.1
Total	345	100.0	17,567	100.0	371	100.0	28,563	100.0

*Values less than 0.05 have been omitted.

Table 2
Size (Number of People Ill) of Outbreaks of Foodborne Illness of Specific Etiology - 1968 and 1969

Etiology	1968			1969		
	Median	Range	Number of Outbreaks	Median	Range	Number of Outbreaks
BACTERIAL						
<i>B. cereus</i>	66		1	5	4-5	3
Brucella	2		1	—	—	—
<i>C. botulinum</i>	1	1-2	9	1	1-6	10
<i>C. perfringens</i>	55.5	2-560	56	23	2-13,500	65
<i>E. coli</i>	185	3-477	6	36	2-250	5
Salmonella	14.5	2-400	42	12.5	3-400	48
Shigella	45	3-195	6	45.5	10-900	10
Staphylococcus	7	2-1,364	82	7.5	2-500	94
Streptococcus	6	3-600	15	3	2-29	4
<i>V. parahemolyticus</i>				35.5	23-48	2
Multiple etiologies				30		1
PARASITIC						
<i>Giardia lamblia</i>				19		1
<i>Trichinella spiralis</i>	4	2-47	9	2	2-7	11
VIRAL						
Hepatitis	31.5	5-76	6	6	4-59	9
CHEMICAL						
Chinese restaurant syndrome (Monosodium glutamate)	3	2-4	5	3	2-4	2
Mushroom	—	—	—	2	1-4	4
Other chemical	5	2-17	17	3	1-43	21
UNKNOWN	6	2-575	84	7	2-325	80
Total	8	1-1,364	339	8	1-13,500	370

Table 3
Vehicles Associated with Foodborne Illness of Specific Etiology¹ - 1969

Etiology	Turkey*	Chicken*	Beef*	Pork*	Other Meat*	Egg	Milk	Cheese	Other Dairy Products	Shellfish	Other Fish	Vegetables and Fruit	Mushrooms	Bakery Products	Chinese Food	Water	Other	Unknown	Total
BACTERIAL																			
<i>B. cereus</i>										1				1				1	3
<i>C. botulinum</i>												6	1					3	10
<i>C. perfringens</i> ²	16	4	34	3			1	4		1		7						2	72
<i>E. coli</i>	1		1							1						2			5
Salmonella ³	11	7	6	2		3			1	1		4		5		1	1	11	53
Shigella												2				4		4	10
Staphylococcus ⁴	12	7	16	31		3	1		1	5	2	8		9	1		3	5	104
Streptococcus			2	1						1									4
<i>Vibrio parahemolyticus</i>										2									2
Multiple etiologies				1															1
PARASITIC																			
<i>Giardia lamblia</i>																1			1
<i>Trichinella spiralis</i>					11														11
VIRAL																			
Hepatitis ⁵	1		2							1						5		2	11
CHEMICAL																			
Chinese restaurant syndrome (Monosodium glutamate)															2				2
Mushroom													4						4
Other chemical ⁶			1	3						2	2	8			1		4	1	22
UNKNOWN ⁷	6	5	10	11						4	2	6		6	2	2	3	24	83
Total	47	23	72	63		6	2	6	2	18	7	41	5	21	6	15	11	53	398

1 - Includes suspected as well as proven vehicles.

2 - Includes 2 outbreaks with 2 vehicles, 1 outbreak with 3 vehicles and 1 outbreak with 4 vehicles.

3 - Includes 4 outbreaks with 2 vehicles.

4 - Includes 4 outbreaks with 2 vehicles, and 3 outbreaks with 3 vehicles.

5 - Includes 1 outbreak with 3 vehicles.

6 - Includes 1 outbreak with 2 vehicles.

7 - Includes 3 outbreaks with 2 vehicles.

*Includes some outbreaks due to meat and/or gravy and/or dressing.

Table 4
Place Where Food Was Mishandled in Foodborne Outbreaks Reported by Specific Etiology - 1969
Selective Comparative Data - 1968

Etiology	Food Processing Establishments	Food Service Establishments	Homes	Unknown-Unspecified	Total
BACTERIAL					
<i>B. cereus</i>		1		2	3
<i>C. botulinum</i>			7	3	10
<i>C. perfringens</i>	5	28	1	31	65
<i>E. coli</i>	2	2		1	5
Salmonella	4	20	6	19	49
Shigella	1	4	1	4	10
Staphylococcus	3	42	11	38	94
Streptococcus	1	1		2	4
<i>V. parahemolyticus</i>			2		2
Multiple etiologies			1		1
PARASITIC					
<i>Giardia lamblia</i>	1				1
<i>Trichinella spiralis</i>	9	1		1	11
VIRAL					
Hepatitis		3	4	2	9
CHEMICAL					
Chinese restaurant syndrome (Monosodium glutamate)		2			2
Mushroom			4		4
Other chemical	5	3	7	6	21
UNKNOWN		7	4	69	80
Total 1969	31	114	48	178	371
Total 1968	16	114	24	106	260

Table 5
Place of Acquisition of Foodborne Illness of Specific Etiology - 1969

Etiology	Restaurant	Delicatessen	Cafeteria	Home	Picnic	School	Church	Camp	Other	Total
BACTERIAL										
<i>B. cereus</i>	2			1						3
<i>C. botulinum</i>	1			8					1	10
<i>C. perfringens</i>	30	1	3	8		17		1	5	65
<i>E. coli</i>	3		1			1				5
Salmonella	7			26		3	3	2	8	49
Shigella	1			4		2	1		2	10
Staphylococcus	26		1	39	3	5	2	2	16	94
Streptococcus	2			2						4
<i>V. parahemolyticus</i>								2		2
Multiple etiologies				1						1
PARASITIC										
<i>Giardia lamblia</i>				1						1
<i>Trichinella spiralis</i>	2			9						11
VIRAL										
Hepatitis				7		1		1		9
CHEMICAL										
Chinese restaurant syndrome (Monosodium glutamate)	1			1						2
Mushroom				4						4
Other chemical	5			12		1			3	21
UNKNOWN	24		1	34		8	2	3	8	80
Total 1969	104	1	6	157	3	38	8	11	43	371
Number of persons ill - 1969	2,922	6	982	1,373	681	19,842	527	416	1,814	28,563

poisoning in 1969 was Salmonella, involving 7 percent of all individuals and 13 percent of all outbreaks; the data for salmonellosis remained essentially unchanged from the previous year - 7 percent of cases and 12 percent of outbreaks. For 1969, these three bacterial agents were responsible for 84 percent of all ill individuals and 56 percent of all outbreaks of food poisoning. In 1968, the corresponding figures had been 67 percent and 52 percent, respectively.

The number of people ill per outbreak of food poisoning for 1969 and 1968 was tabulated according to specific type of responsible agent (Table 2). In general, outbreaks of *C. botulinum*, Staphylococcus, Streptococcus, parasitic, chemical, and unknown etiology food poisoning involved small groups of people (<10) in both years. The median number of persons involved in Salmonella and Shigella foodborne outbreaks was similar for both years, while the size of *C. perfringens*, *E. coli*, and viral outbreaks decreased in 1969. Of interest is the fact that the median number of persons involved in a foodborne outbreak, considering all etiologies, remained constant for both years - eight in 1968 and eight in 1969. Attack rates were exceedingly high (>75 percent) for outbreaks of *B. cereus*, *C. botulinum*, Streptococcus, *Trichinella spiralis*, and chemical food poisoning; moderately high (>50 percent) for *C. perfringens*, *E. coli*, Salmonella, Staphylococcus, and unknown etiology food poisoning; and low (<50 percent) for Shigella, *V. parahemolyticus*, and viral food poisoning.

The three most commonly incriminated vehicles in decreasing order of frequency were beef, fowl, and pork (Table 3). Other vehicles of importance were vegetables and fruits, fish, and bakery products. Vegetables and fruits tended to be associated with *C. botulinum* outbreaks; beef and turkey with *C. perfringens* food poisoning; fowl with Salmonella; pork, fowl, and beef with Staphylococcus; and water with infectious hepatitis food poisoning.

Thirty-one percent of the contaminations occurred in food service establishments, 13 percent in homes, and 8 percent in food processing establishments (Table 4). In 48 percent of the outbreaks, the site of contamination could not be determined.

The majority of foodborne outbreaks (70 percent) occurred in homes and restaurants (Table 5); however, this represented only 15 percent of the total persons ill. While food poisoning in schools accounted for only 10 percent of the outbreaks, nearly 70 percent of all persons affected were school children. Illness due to *C. botulinum*, Salmonella, *T. spiralis*, infectious hepatitis, and mushroom toxins tended to be caused by foods eaten at home, those due to *C. perfringens* and *E. coli* in public facilities, and those due to Staphylococcus in both public facilities and at home.

Outbreaks of food poisoning were distributed throughout the year. No seasonal trends were apparent (Table 6).

(Continued on page 160)

Table 6
Monthly Occurrence of Outbreaks of Foodborne Illness of Specific Etiology - 1969
Selective Comparative Data, Annual Summary - 1968

Etiology	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
BACTERIAL													
<i>B. cereus</i>					1					1		1	3
<i>C. botulinum</i>		1	4				1		1		1	2	10
<i>C. perfringens</i>	3	9	6	6	12	3	3	6	2	5	6	4	65
<i>E. coli</i>	1			1				2				1	5
Salmonella	2	3	2	6	4	3	6	3	5	2	9	4	49
Shigella			1		3		2		1	2	1		10
Staphylococcus	2	4	7	12	9	8	4	14	9	9	10	6	94
Streptococcus					1	1						2	4
<i>V. parahemolyticus</i>							1	1					2
Multiple etiologies			1										1
PARASITIC													
<i>Giardia lamblia</i>								1					1
<i>Trichinella spiralis</i>	2		2	2		3				1	1		11
VIRAL													
Hepatitis	1	1	1					3	2	1			9
CHEMICAL													
Chinese restaurant syndrome (Monosodium glutamate)			1									1	2
Mushroom			1		1					1	1		4
Other chemical		1		2	4	1	1	3	3	1	1	4	21
UNKNOWN													
	7	4	7	7	10	4	10	2	5	6	9	9	80
Total 1969	18	23	33	36	45	23	28	35	28	29	40	33	371
Total 1968	22	26	31	26	37	39	27	28	27	39	29	14	345

Morbidity and Mortality Weekly Report

TABLE III. CASES OF SPECIFIED NOTIFIABLE DISEASES: UNITED STATES

FOR WEEKS ENDED

APRIL 18, 1970 and APRIL 12, 1969 (15th WEEK)

AREA	ASEPTIC MENIN- GITIS	BRUCEL- LOSIS	DIPH- THERIA	ENCEPHALITIS			HEPATITIS			MALARIA	
				Primary including unsp. cases		Post In- fectious	Serum	Infectious		1970	Cum. 1970
				1970	1969	1970		1970	1969		
UNITED STATES.....	23	7	-	29	14	7	164	1,034	964	82	1,000
NEW ENGLAND.....	-	-	-	1	-	-	8	77	65	3	32
Maine.....	-	-	-	-	-	-	2	7	3	-	-
New Hampshire.....	-	-	-	-	-	-	-	8	1	-	-
Vermont.....	-	-	-	-	-	-	-	2	3	-	1
Massachusetts.....	-	-	-	1	-	-	3	32	28	3	19
Rhode Island.....	-	-	-	-	-	-	-	15	18	-	5
Connecticut.....	-	-	-	-	-	-	3	13	12	-	6
MIDDLE ATLANTIC.....	6	1	-	5	1	1	65	155	166	9	116
New York City.....	-	-	-	-	-	-	35	27	25	-	25
New York, Up-State...	1	-	-	1	-	1	6	31	23	3	29
New Jersey.....	3	1	-	4	-	-	19	59	42	1	33
Pennsylvania.*.....	2	-	-	-	1	-	5	38	76	5	29
EAST NORTH CENTRAL.....	1	1	-	9	5	3	18	150	155	5	51
Ohio.....	1	-	-	3	3	2	3	50	40	1	13
Indiana.....	-	-	-	-	-	-	-	14	8	-	3
Illinois.....	-	-	-	1	1	-	2	22	33	2	8
Michigan.....	-	-	-	5	1	1	13	54	65	2	27
Wisconsin.....	-	1	-	-	-	-	-	10	9	-	-
WEST NORTH CENTRAL.....	-	-	-	-	3	-	1	59	47	2	67
Minnesota.*.....	-	-	-	-	-	-	-	12	11	-	1
Iowa.....	-	-	-	-	2	-	-	8	15	-	7
Missouri.....	-	-	-	-	-	-	1	18	2	-	5
North Dakota.....	-	-	-	-	-	-	-	2	2	-	1
South Dakota.....	-	-	-	-	1	-	-	1	15	-	-
Nebraska.....	-	-	-	-	-	-	-	2	-	-	1
Kansas.....	-	-	-	-	-	-	-	16	2	2	52
SOUTH ATLANTIC.....	2	4	-	8	1	2	12	114	95	1	176
Delaware.....	1	-	-	-	-	-	1	3	6	-	1
Maryland.....	-	-	-	-	-	2	3	8	7	-	21
Dist. of Columbia...	-	-	-	-	-	-	-	-	2	-	-
Virginia.....	-	4	-	-	-	-	2	17	10	1	15
West Virginia.....	-	-	-	-	-	-	-	11	3	-	1
North Carolina.....	-	-	-	2	-	-	-	12	13	-	81
South Carolina.....	1	-	-	1	-	-	-	7	2	-	15
Georgia.....	-	-	-	-	-	-	-	9	10	-	32
Florida.....	-	-	-	5	1	-	6	47	42	-	10
EAST SOUTH CENTRAL.....	6	-	-	-	-	-	-	92	50	19	89
Kentucky.....	5	-	-	-	-	-	-	29	19	19	81
Tennessee.....	1	-	-	-	-	-	-	37	19	-	-
Alabama.....	-	-	-	-	-	-	-	21	6	-	7
Mississippi.....	-	-	-	-	-	-	-	5	6	-	1
WEST SOUTH CENTRAL.....	1	1	-	-	2	-	9	86	84	31	214
Arkansas.....	-	-	-	-	-	-	-	-	2	-	1
Louisiana.....	-	-	-	-	2	-	1	7	18	-	12
Oklahoma.....	1	-	-	-	-	-	-	16	5	1	23
Texas.....	-	1	-	-	-	-	8	63	59	30	178
MOUNTAIN.....	-	-	-	-	-	-	-	64	108	-	77
Montana.....	-	-	-	-	-	-	-	3	2	-	2
Idaho.....	-	-	-	-	-	-	-	17	3	-	1
Wyoming.....	-	-	-	-	-	-	-	1	2	-	-
Colorado.....	-	-	-	-	-	-	-	18	58	-	70
New Mexico.....	-	-	-	-	-	-	-	1	14	-	1
Arizona.....	-	-	-	-	-	-	-	14	24	-	2
Utah.....	-	-	-	-	-	-	1	10	5	-	1
Nevada.....	-	-	-	-	-	-	-	-	-	-	-
PACIFIC.....	7	-	-	6	2	1	50	237	194	12	178
Washington.....	-	-	-	-	-	-	-	18	14	4	12
Oregon.....	-	-	-	-	-	-	1	17	13	-	9
California.....	7	-	-	6	2	1	49	198	166	8	139
Alaska.....	-	-	-	-	-	-	-	2	-	-	-
Hawaii.....	-	-	-	-	-	-	-	2	1	-	18
Puerto Rico.F.....	-	-	-	-	-	-	-	50	31	-	-
Virgin Islands.....	-	-	-	-	-	-	-	-	-	-	-

*Delayed reports: Encephalitis, primary: Minn. 1

Hepatitis, infectious: N.J. delete 1, Wyo. delete 1, P.R. 1

Malaria: Pa. delete 1

TABLE III. CASES OF SPECIFIED NOTIFIABLE DISEASES: UNITED STATES
FOR WEEKS ENDED
APRIL 18, 1970 and APRIL 12, 1969 (15th WEEK) - CONTINUED

AREA	MEASLES (Rubeola)			MENINGOCOCCAL INFECTIONS, TOTAL			MUMPS		POLIOMYELITIS		
	1970	Cumulative		1970	Cumulative		1970	Cum. 1970	Total 1970	Paralytic	
		1970	1969		1970	1969				1970	1970
UNITED STATES.....	1,657	18,604	8,549	76	1,038	1,296	3,632	40,134	-	-	1
NEW ENGLAND.....	39	457	358	1	38	37	333	5,253	-	-	-
Maine.....	-	2	2	-	-	2	3	528	-	-	-
New Hampshire.....	-	14	75	-	3	-	1	201	-	-	-
Vermont.....	-	1	2	-	3	-	36	464	-	-	-
Massachusetts.*	37	392	53	-	14	19	145	1,730	-	-	-
Rhode Island.....	-	14	17	-	3	4	34	588	-	-	-
Connecticut.....	2	34	209	1	15	12	114	1,742	-	-	-
MIDDLE ATLANTIC.....	210	2,619	2,798	21	178	191	472	4,242	-	-	-
New York City.....	40	438	1,863	8	45	36	121	1,338	-	-	-
New York, Up-State...	21	102	275	5	34	25	-	4	-	-	-
New Jersey.....	77	1,058	391	6	64	86	228	1,295	-	-	-
Pennsylvania.....	72	1,021	269	2	35	44	123	1,605	-	-	-
EAST NORTH CENTRAL.....	284	4,018	928	2	120	155	919	9,975	-	-	-
Ohio.....	143	1,488	102	2	54	55	261	1,611	-	-	-
Indiana.....	18	161	265	-	13	18	78	993	-	-	-
Illinois.....	23	1,630	169	-	27	29	63	893	-	-	-
Michigan.....	40	404	97	-	22	44	163	2,354	-	-	-
Wisconsin.....	60	335	295	-	4	9	354	4,124	-	-	-
WEST NORTH CENTRAL.....	68	1,741	290	2	54	65	269	2,458	-	-	-
Minnesota.....	2	24	1	1	6	12	43	234	-	-	-
Iowa.....	6	61	176	-	7	9	176	1,611	-	-	-
Missouri.*	22	486	12	1	37	23	5	58	-	-	-
North Dakota.....	15	194	6	-	2	-	2	185	-	-	-
South Dakota.....	-	64	-	-	-	-	-	2	-	-	-
Nebraska.....	23	867	95	-	2	8	8	289	-	-	-
Kansas.....	-	45	-	-	-	13	35	79	-	-	-
SOUTH ATLANTIC.....	427	3,405	1,348	18	236	232	319	4,174	-	-	-
Delaware.....	7	170	111	1	3	4	9	98	-	-	-
Maryland.....	84	684	13	3	24	21	35	309	-	-	-
Dist. of Columbia...	4	303	-	-	1	5	16	114	-	-	-
Virginia.....	95	922	516	-	20	29	114	906	-	-	-
West Virginia.....	7	113	128	-	5	12	59	1,201	-	-	-
North Carolina.....	28	319	127	7	49	33	NN	NN	-	-	-
South Carolina.....	43	263	66	4	18	35	8	412	-	-	-
Georgia.....	2	4	1	1	26	34	-	-	-	-	-
Florida.....	157	627	386	2	90	59	78	1,134	-	-	-
EAST SOUTH CENTRAL.....	54	313	48	16	78	71	212	2,463	-	-	-
Kentucky.....	39	177	21	8	28	22	87	919	-	-	-
Tennessee.....	14	93	12	4	33	31	97	1,396	-	-	-
Alabama.....	-	24	-	4	13	10	25	132	-	-	-
Mississippi.....	1	19	15	-	4	8	3	16	-	-	-
WEST SOUTH CENTRAL.....	450	4,443	2,055	9	154	184	349	3,902	-	-	1
Arkansas.....	-	19	3	-	15	20	12	64	-	-	-
Louisiana.....	2	44	67	5	38	45	1	8	-	-	-
Oklahoma.*	10	173	105	-	10	19	130	1,269	-	-	-
Texas.....	438	4,207	1,880	4	91	100	206	2,561	-	-	1
MOUNTAIN.....	39	720	208	-	15	30	151	1,801	-	-	-
Montana.....	1	14	4	-	-	4	24	321	-	-	-
Idaho.....	-	5	36	-	3	5	4	61	-	-	-
Wyoming.....	-	-	-	-	1	-	-	11	-	-	-
Colorado.....	-	16	20	-	5	6	53	587	-	-	-
New Mexico.....	8	95	87	-	-	5	33	393	-	-	-
Arizona.....	30	580	59	-	4	7	36	357	-	-	-
Utah.....	-	6	1	-	2	1	1	71	-	-	-
Nevada.....	-	4	1	-	-	2	-	-	-	-	-
PACIFIC.....	86	888	516	7	165	331	608	5,866	-	-	-
Washington.....	-	74	34	1	19	42	263	2,426	-	-	-
Oregon.....	4	120	121	1	15	8	45	427	-	-	-
California.....	81	647	352	5	130	271	250	2,342	-	-	-
Alaska.....	1	2	4	-	-	4	14	244	-	-	-
Hawaii.....	-	45	5	-	1	6	36	427	-	-	-
Puerto Rico.....	27	635	223	-	2	6	51	409	-	-	-
Virgin Islands.....	1	5	1	-	1	-	-	1	-	-	-

Delayed reports: Measles: Mass. delete 5, Mo. 185, Okla. 46

Morbidity and Mortality Weekly Report

TABLE III. CASES OF SPECIFIED NOTIFIABLE DISEASES: UNITED STATES

FOR WEEKS ENDED

APRIL 18, 1970 and APRIL 12, 1969 (15th WEEK) - CONTINUED

AREA	RUBELLA		TETANUS		TULAREMIA		TYPHOID FEVER		TYPHUS FEVER TICK-BORNE (Rky. Mt. Spotted)		RABIES IN ANIMALS	
	1970	Cum. 1970	1970	Cum. 1970	1970	Cum. 1970	1970	Cum. 1970	1970	Cum. 1970	1970	Cum. 1970
UNITED STATES.....	2,746	24,425	2	25	5	32	3	65	1	3	68	955
NEW ENGLAND.....	99	1,082	-	3	-	-	-	2	-	-	3	42
Maine.....	12	174	-	-	-	-	-	-	-	-	2	7
New Hampshire.....	8	103	-	-	-	-	-	-	-	-	-	-
Vermont.....	-	24	-	-	-	-	-	-	-	-	1	34
Massachusetts.....	54	471	-	2	-	-	-	1	-	-	-	-
Rhode Island.....	2	39	-	-	-	-	-	-	-	-	-	1
Connecticut.....	23	271	-	1	-	-	-	1	-	-	-	-
MIDDLE ATLANTIC.....	206	1,706	-	3	-	-	1	18	-	-	8	83
New York City.....	27	248	-	1	-	-	-	6	-	-	-	-
New York, Up-State..	8	156	-	-	-	-	-	5	-	-	8	81
New Jersey.....	50	517	-	1	-	-	-	2	-	-	-	-
Pennsylvania.....	121	785	-	1	-	-	1	5	-	-	-	2
EAST NORTH CENTRAL....	417	5,355	1	6	2	15	-	8	-	-	8	58
Ohio.....	69	863	-	-	-	2	-	3	-	-	3	24
Indiana.....	111	1,105	-	1	2	12	-	-	-	-	-	3
Illinois.....	40	625	1	3	-	1	-	1	-	-	4	17
Michigan.....	128	1,447	-	2	-	-	-	4	-	-	1	3
Wisconsin.....	69	1,315	-	-	-	-	-	-	-	-	-	11
WEST NORTH CENTRAL....	208	2,108	-	1	-	4	-	1	-	-	9	133
Minnesota.....	9	77	-	-	-	-	-	1	-	-	2	29
Iowa.....	145	1,333	-	-	-	-	-	-	-	-	2	26
Missouri.....	15	223	-	-	-	3	-	-	-	-	2	34
North Dakota.....	2	82	-	-	-	1	-	-	-	-	1	15
South Dakota.....	-	1	-	1	-	-	-	-	-	-	-	2
Nebraska.....	34	371	-	-	-	-	-	-	-	-	-	27
Kansas.....	3	21	-	-	-	-	-	-	-	-	2	27
SOUTH ATLANTIC.....	413	3,147	-	7	-	4	-	11	1	2	16	241
Delaware.....	8	34	-	-	-	-	-	-	-	-	-	1
Maryland.....	18	146	-	-	-	-	-	3	-	-	-	-
Dist. of Columbia..	-	11	-	1	-	-	-	-	-	-	-	-
Virginia.....	34	428	-	-	-	-	-	1	1	2	6	119
West Virginia.....	118	758	-	-	-	-	-	-	-	-	7	56
North Carolina.....	1	9	-	-	-	3	-	1	-	-	-	-
South Carolina.....	55	302	-	-	-	-	-	-	-	-	-	38
Georgia.....	-	-	-	1	-	-	-	4	-	-	2	27
Florida.....	179	1,459	-	5	-	1	-	2	-	-	1	27
EAST SOUTH CENTRAL....	207	1,256	-	-	-	2	-	2	-	-	2	94
Kentucky.....	95	449	-	-	-	1	-	-	-	-	-	51
Tennessee.....	74	612	-	-	-	1	-	-	-	-	2	28
Alabama.....	26	158	-	-	-	-	-	2	-	-	-	15
Mississippi.....	12	37	-	-	-	-	-	-	-	-	-	-
WEST SOUTH CENTRAL....	547	4,394	1	3	3	7	1	5	-	1	11	176
Arkansas.....	20	24	-	1	-	2	-	3	-	-	2	24
Louisiana.....	13	65	1	2	-	-	-	1	-	-	-	35
Oklahoma.....*	27	583	-	-	3	4	-	-	-	1	5	31
Texas.....	487	3,722	-	-	-	1	1	1	-	-	4	86
MOUNTAIN.....	81	897	-	-	-	-	1	4	-	-	1	15
Montana.....	20	207	-	-	-	-	-	1	-	-	-	-
Idaho.....	-	30	-	-	-	-	-	-	-	-	-	-
Wyoming.....	5	50	-	-	-	-	-	-	-	-	-	-
Colorado.....	-	158	-	-	-	-	-	1	-	-	-	7
New Mexico.....	25	83	-	-	-	-	1	2	-	-	-	8
Arizona.....	27	263	-	-	-	-	-	-	-	-	1	-
Utah.....	4	106	-	-	-	-	-	-	-	-	-	-
Nevada.....	-	-	-	-	-	-	-	-	-	-	-	-
PACIFIC.....	568	4,480	-	2	-	-	-	14	-	-	10	113
Washington.....	300	2,229	-	-	-	-	-	1	-	-	-	1
Oregon.....	36	355	-	1	-	-	-	-	-	-	1	112
California.....	214	1,702	-	1	-	-	-	12	-	-	9	-
Alaska.....	3	65	-	-	-	-	-	1	-	-	-	-
Hawaii.....	15	129	-	-	-	-	-	-	-	-	-	-
Puerto Rico.....	1	13	-	3	-	-	-	2	-	-	1	16
Virgin Islands.....	-	-	-	-	-	-	-	-	-	-	-	-

*Delayed reports: RMSF: Okla. 1

Week No. 15
 TABLE IV. DEATHS IN 122 UNITED STATES CITIES FOR WEEK ENDED APRIL 18, 1970
 (By place of occurrence and week of filing certificate. Excludes fetal deaths)

Area	All Causes		Pneumonia and Influenza All Ages	Under 1 year All Causes	Area	All Causes		Pneumonia and Influenza All Ages	Under 1 year All Causes
	All Ages	65 years and over				All Ages	65 years and over		
NEW ENGLAND:	695	434	33	22	SOUTH ATLANTIC:	1,273	653	43	87
Boston, Mass.-----	200	116	7	4	Atlanta, Ga.-----	113	46	1	7
Bridgeport, Conn.-----	46	30	6	1	Baltimore, Md.-----	259	138	2	10
Cambridge, Mass.-----	25	16	3	1	Charlotte, N. C.-----	45	18	2	3
Fall River, Mass.-----	30	23	-	-	Jacksonville, Fla.-----	91	49	3	3
Hartford, Conn.-----	45	19	1	1	Miami, Fla.-----	127	64	3	8
Lowell, Mass.-----	30	24	1	1	Norfolk, Va.-----	53	22	3	5
Lynn, Mass.-----	24	19	-	-	Richmond, Va.-----	108	57	8	2
New Bedford, Mass.-----	26	17	1	2	Savannah, Ga.-----	19	11	2	1
New Haven, Conn.-----	58	32	2	4	St. Petersburg, Fla.-----	93	76	6	2
Providence, R. I.-----	71	42	9	5	Tampa, Fla.-----	88	50	6	2
Somerville, Mass.-----	11	9	-	-	Washington, D. C.-----	222	94	6	44
Springfield, Mass.-----	42	21	2	1	Wilmington, Del.-----	55	28	1	-
Waterbury, Conn.-----	37	30	-	-	EAST SOUTH CENTRAL:	646	338	18	26
Worcester, Mass.-----	50	36	1	2	Birmingham, Ala.-----	83	39	-	4
MIDDLE ATLANTIC:	3,345	2,006	148	124	Chattanooga, Tenn.-----	43	19	2	1
Albany, N. Y.-----	62	35	2	-	Knoxville, Tenn.-----	50	37	1	1
Allentown, Pa.-----	51	32	2	2	Louisville, Ky.-----	101	58	4	4
Buffalo, N. Y.-----	162	91	1	7	Memphis, Tenn.-----	160	77	2	8
Camden, N. J.-----	48	27	2	3	Mobile, Ala.-----	57	32	3	2
Elizabeth, N. J.-----	37	23	1	3	Montgomery, Ala.-----	46	26	4	1
Erie, Pa.-----	51	26	3	1	Nashville, Tenn.-----	106	50	2	5
Jersey City, N. J.-----	67	47	6	2	WEST SOUTH CENTRAL:	1,151	573	40	81
Newark, N. J.-----	79	39	2	1	Austin, Tex.-----	31	12	2	2
New York City, N. Y.-----	1,618	961	77	59	Baton Rouge, La.-----	57	35	2	1
Paterson, N. J.-----	37	26	2	1	Corpus Christi, Tex.-----	28	15	3	2
Philadelphia, Pa.-----	519	293	9	20	Dallas, Tex.-----	173	83	3	18
Pittsburgh, Pa.-----	185	114	17	16	El Paso, Tex.-----	51	27	4	10
Reading, Pa.-----	54	34	-	1	Fort Worth, Tex.-----	74	35	4	6
Rochester, N. Y.-----	118	74	3	5	Houston, Tex.-----	212	91	2	8
Schenectady, N. Y.-----	27	22	3	-	Little Rock, Ark.-----	34	20	2	-
Scranton, Pa.-----	40	28	3	1	New Orleans, La.-----	161	77	4	14
Syracuse, N. Y.-----	86	56	3	1	Oklahoma City, Okla.-----	81	42	2	7
Trenton, N. J.-----	46	35	4	-	San Antonio, Tex.-----	122	61	4	8
Utica, N. Y.-----	24	21	5	-	Shreveport, La.-----	52	28	3	3
Yonkers, N. Y.-----	34	22	3	1	Tulsa, Okla.-----	75	47	5	2
EAST NORTH CENTRAL:	2,555	1,437	91	155	MOUNTAIN:	508	308	19	18
Akron, Ohio-----	57	25	-	4	Albuquerque, N. Mex.-----	40	23	5	1
Canton, Ohio-----	46	29	3	2	Colorado Springs, Colo.-----	32	17	5	2
Chicago, Ill.-----	712	387	22	41	Denver, Colo.-----	125	68	3	5
Cincinnati, Ohio-----	162	91	7	7	Ogden, Utah-----	28	23	-	-
Cleveland, Ohio-----	190	101	2	15	Phoenix, Ariz.-----	120	80	2	6
Columbus, Ohio-----	141	71	-	16	Pueblo, Colo.-----	23	16	2	-
Dayton, Ohio-----	72	38	2	2	Salt Lake City, Utah-----	69	39	2	2
Detroit, Mich.-----	323	179	9	1	Tucson, Ariz.-----	71	42	-	2
Evansville, Ind.-----	36	24	3	1	PACIFIC:	1,893	1,151	46	91
Flint, Mich.-----	52	29	3	5	Berkeley, Calif.-----	29	20	1	1
Fort Wayne, Ind.-----	48	32	4	3	Fresno, Calif.-----	63	35	2	2
Gary, Ind.-----	33	15	4	2	Glendale, Calif.-----	53	42	-	1
Grand Rapids, Mich.-----	40	21	5	3	Honolulu, Hawaii-----	60	32	2	8
Indianapolis, Ind.-----	171	95	1	15	Long Beach, Calif.-----	97	61	3	2
Madison, Wis.-----	26	19	2	1	Los Angeles, Calif.-----	644	392	20	33
Milwaukee, Wis.-----	138	96	2	4	Oakland, Calif.-----	105	65	3	5
Peoria, Ill.-----	39	17	-	3	Pasadena, Calif.-----	38	29	2	1
Rockford, Ill.-----	46	25	3	1	Portland, Oreg.-----	153	96	3	6
South Bend, Ind.-----	49	30	2	3	Sacramento, Calif.-----	66	42	1	5
Toledo, Ohio-----	112	77	8	9	San Diego, Calif.-----	116	69	1	6
Youngstown, Ohio-----	62	36	9	2	San Francisco, Calif.-----	185	98	4	6
WEST NORTH CENTRAL:	867	541	32	44	San Jose, Calif.-----	41	25	1	1
Des Moines, Iowa-----	68	42	1	4	Seattle, Wash.-----	149	80	2	10
Duluth, Minn.-----	33	26	5	2	Spokane, Wash.-----	52	37	-	2
Kansas City, Kans.-----	49	22	7	5	Tacoma, Wash.-----	42	28	1	2
Kansas City, Mo.-----	168	107	2	7	Total	12,933	7,441	470	648
Lincoln, Nebr.-----	41	32	1	3	Expected Number	12,779	7,486	449	484
Minneapolis, Minn.-----	110	68	6	4	Cumulative Total (includes reported corrections for previous weeks)	208,881	120,645	9,865	9,265
Omaha, Nebr.-----	62	44	-	3					
St. Louis, Mo.-----	210	116	3	13					
St. Paul, Minn.-----	75	56	1	2					
Wichita, Kans.-----	51	28	6	1					
Las Vegas, Nev.*	34	16	3	3					

*Mortality data are being collected from Las Vegas, Nev., for possible inclusion in this table, however, for statistical reasons, these data will be listed only and not included in the total, expected number, or cumulative total, until 5 years of data are collected.

FOODBORNE DISEASE - (Continued from page 155)

(Reported by the Enteric Diseases Section and Epidemiologic Services Laboratory Section, Bacterial Diseases Branch, and the Statistical Services Activity, Epidemiology Program, NCDC.)

A copy of the original report from which these data were derived is available on request from

National Communicable Disease Center
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IN ADDITION TO THE ESTABLISHED PROCEDURES FOR REPORTING MORBIDITY AND MORTALITY, THE NATIONAL COMMUNICABLE DISEASE CENTER WELCOMES ACCOUNTS OF INTERESTING OUTBREAKS OR CASE INVESTIGATIONS WHICH ARE OF CURRENT INTEREST TO HEALTH OFFICIALS AND WHICH ARE DIRECTLY RELATED TO THE CONTROL OF COMMUNICABLE DISEASES. SUCH COMMUNICATIONS SHOULD BE ADDRESSED TO:

NATIONAL COMMUNICABLE DISEASE CENTER
ATTN: THE EDITOR
MORBIDITY AND MORTALITY WEEKLY REPORT
ATLANTA, GEORGIA 30333

NOTE: THE DATA IN THIS REPORT ARE PROVISIONAL AND ARE BASED ON WEEKLY TELEGRAMS TO THE NCDC BY THE INDIVIDUAL STATE HEALTH DEPARTMENTS. THE REPORTING WEEK CONCLUDES AT CLOSE OF BUSINESS ON FRIDAY; COMPILED DATA ON A NATIONAL BASIS ARE OFFICIALLY RELEASED TO THE PUBLIC ON THE SUCCEEDING FRIDAY.

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